

# TECHNICAL SPECIFICATIONS

Model	AlphaScan	AlphaScan Elite
Scanning Mode	High-Speed Scanning	50 blue laser lines
	Precision Scanning	7 blue laser lines
	Deep Hole Scanning	1 single blue laser line
Accuracy	up to 0.020mm	
Measurement Rate	5,400,000 measurements/s	7,100,000 measurements/s
Scanning Area	up to 650mm×550mm	
Laser Class	Class II (Eye Safe)	
Resolution	up to 0.01mm	
Volumetric Accuracy	0.015mm+0.035mm/m 0.015mm+0.025mm/m (Working with photogrammetric scale bar)	
Working Distance	300mm (200mm fine mode)	
Depth of Field	550mm	
Output Formats	STL, PLY, TXT etc.	
Operating Temperature	-10° C to 40° C	
Interface Type	USB 3.0	
Minimum computer requirements	OS: Windows 10 or later (64-bit required) GPU: NVIDIA GTX/RTX series (e.g., RTX 4060 or higher) VRAM: 8 GB or more CPU: Intel Core i7-13700H or better RAM: 32 GB or higher	

※ According to the VDI/VDE 2634 Part 3 standard and the JJF 1951-2021 Calibration Specification for Optical Three-dimensional Measurement Systems Based on Structured Light Scanning.



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The Company reserves the right to interpret and modify the information contained in this manual.

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# AlphaScan <sup>NEW</sup>

AI Metrology-Grade Handheld 3D Scanner

Perfected Excellence · Reinvented Upgrade



# AlphaScan Series

The newly upgraded AlphaScan AI metrology-grade handheld 3D scanner features up to 50 intersecting blue laser lines, delivering a more robust structure and enhanced performance. While retaining its original lightweight design, high speed, and stable accuracy, it now offers improved capabilities for detailed scanning and global control. The modular design further increases its adaptability, providing users with versatile and efficient multi-scenario solutions.



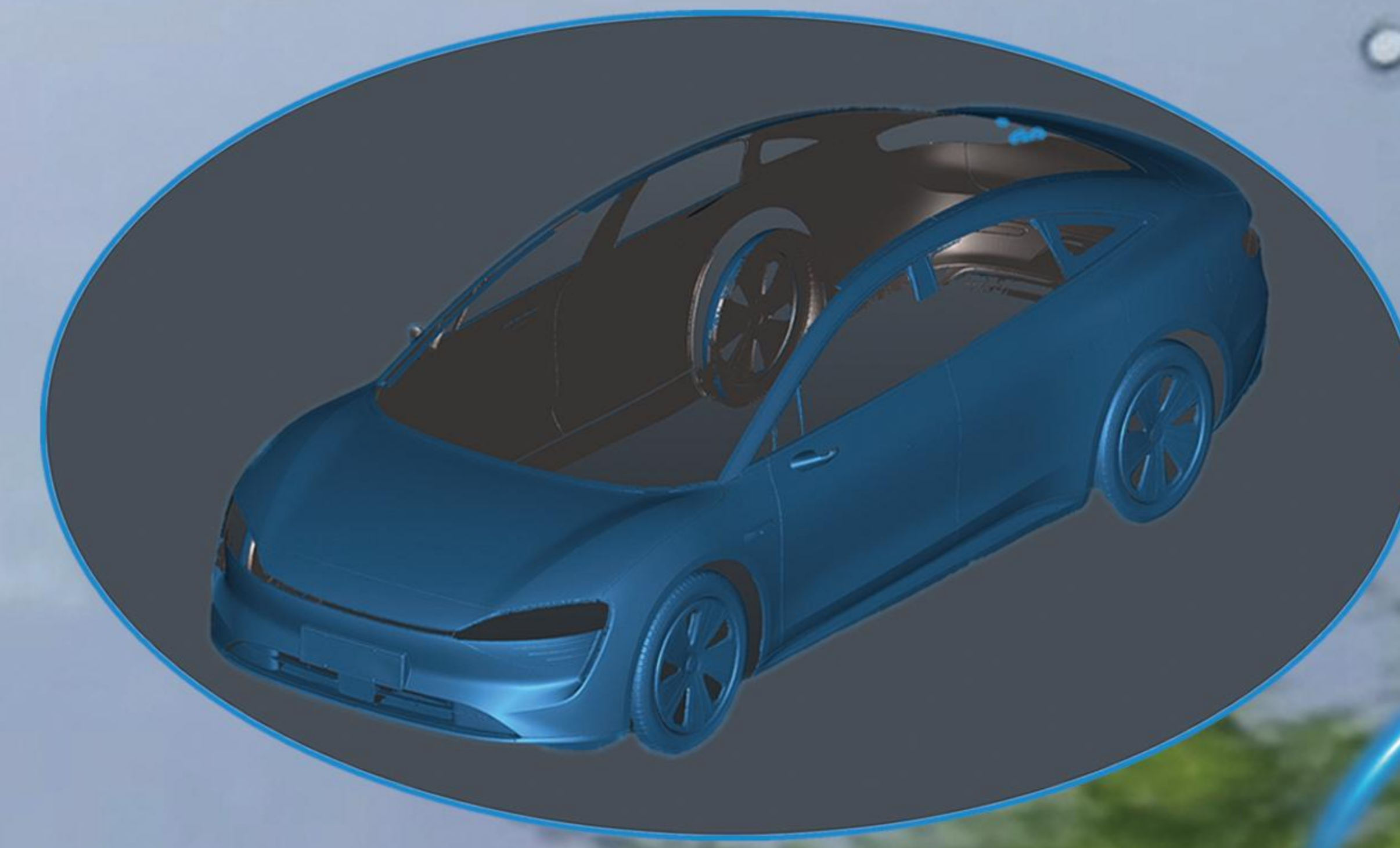
7,100,000 measurements/s  
58 Blue Laser Beams  
High-Speed Data Acquisition



Repeatability  
0.02mm  
High Measurement Consistency



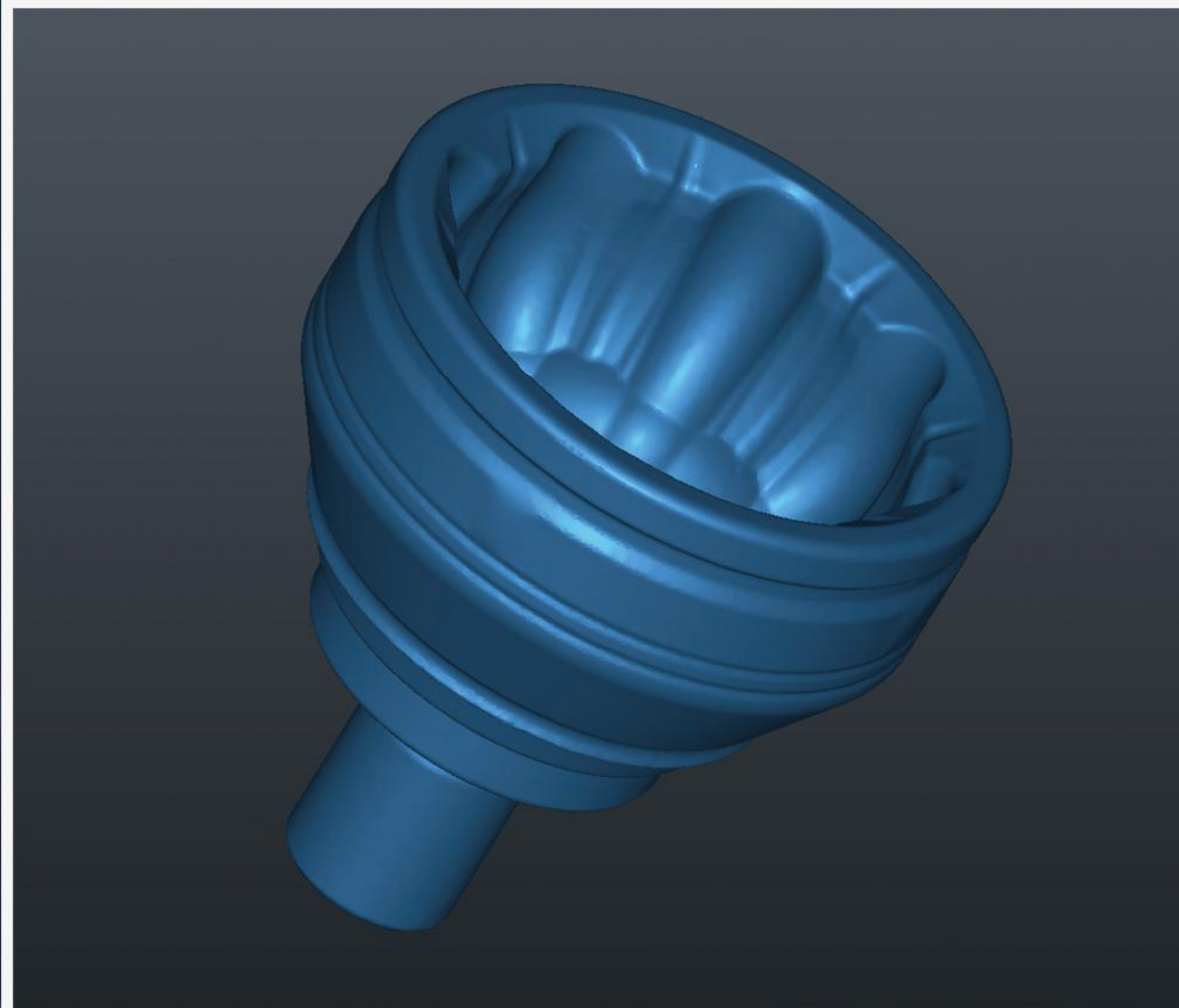
0.015mm+0.035mm/m  
0.015mm+0.025mm/m  
(Selection of photogrammetric scale)





## Large aperture High resolution

Industrial HD Optical Camera  
Captures even the finest details  
without omission  
Enhanced device robustness  
Deep holes, blind spots  
and complex grooves  
Accurately acquires complete data  
from complex surfaces

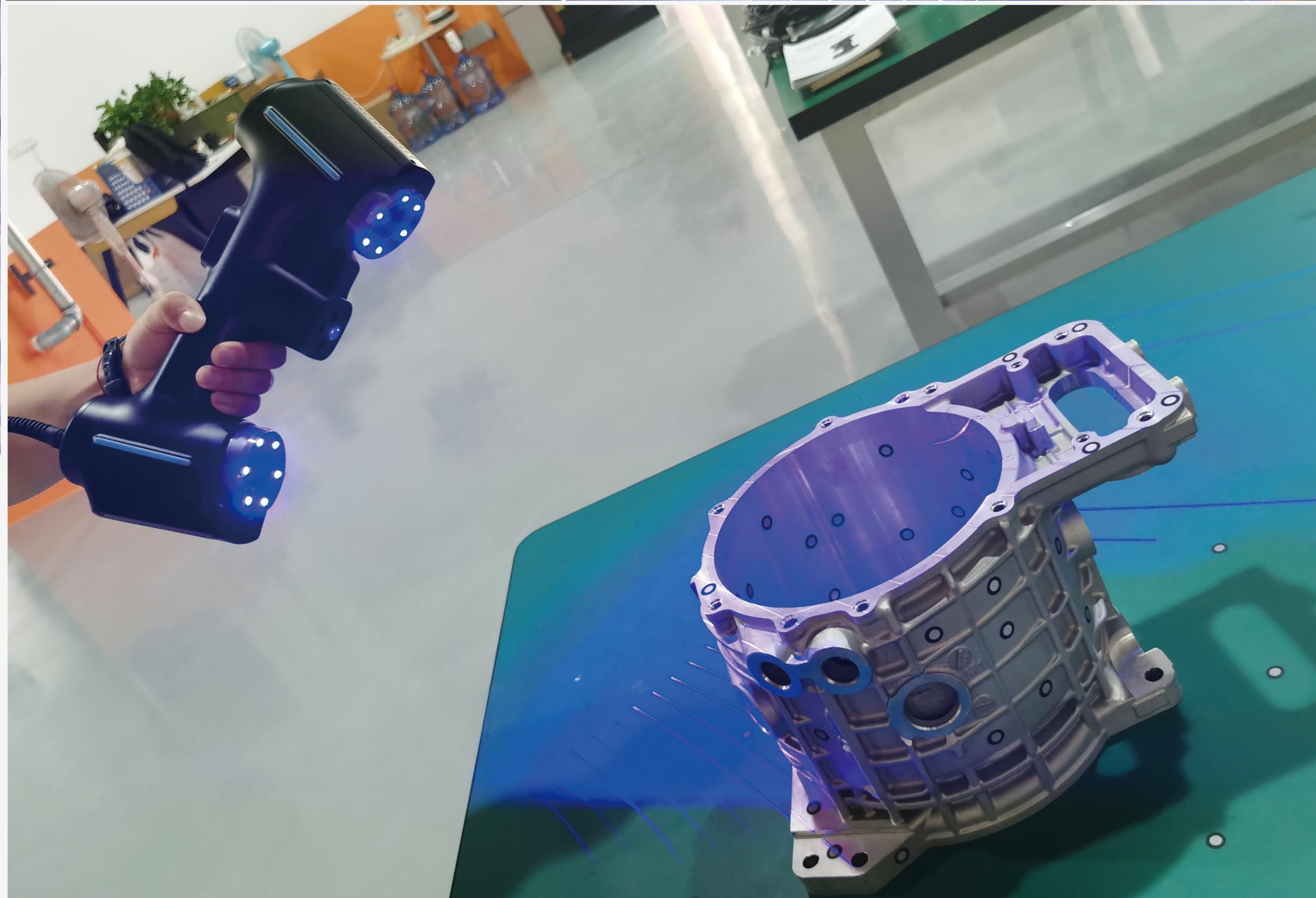


## Free and flexible lightweight and portable

The entire device weighs only 1070g  
Improved ergonomic grip for enhanced comfort  
Effortless extended handheld operation

## Large scanning area Higher efficiency

Scanning area expanded by 40%  
Broader field of view enables a more  
efficient and seamless scanning experience  
Easily handles large-sized workpiece scanning





## Precision Inspection Exquisite Detail

Adaptive Calibration Algorithm  
Accuracy stabilized at 0.02mm  
Meets industrial measurement requirements  
Optional photogrammetry assistance  
Breaks through the limitations of long-range technology

## 3D INSPECTION PROCESS

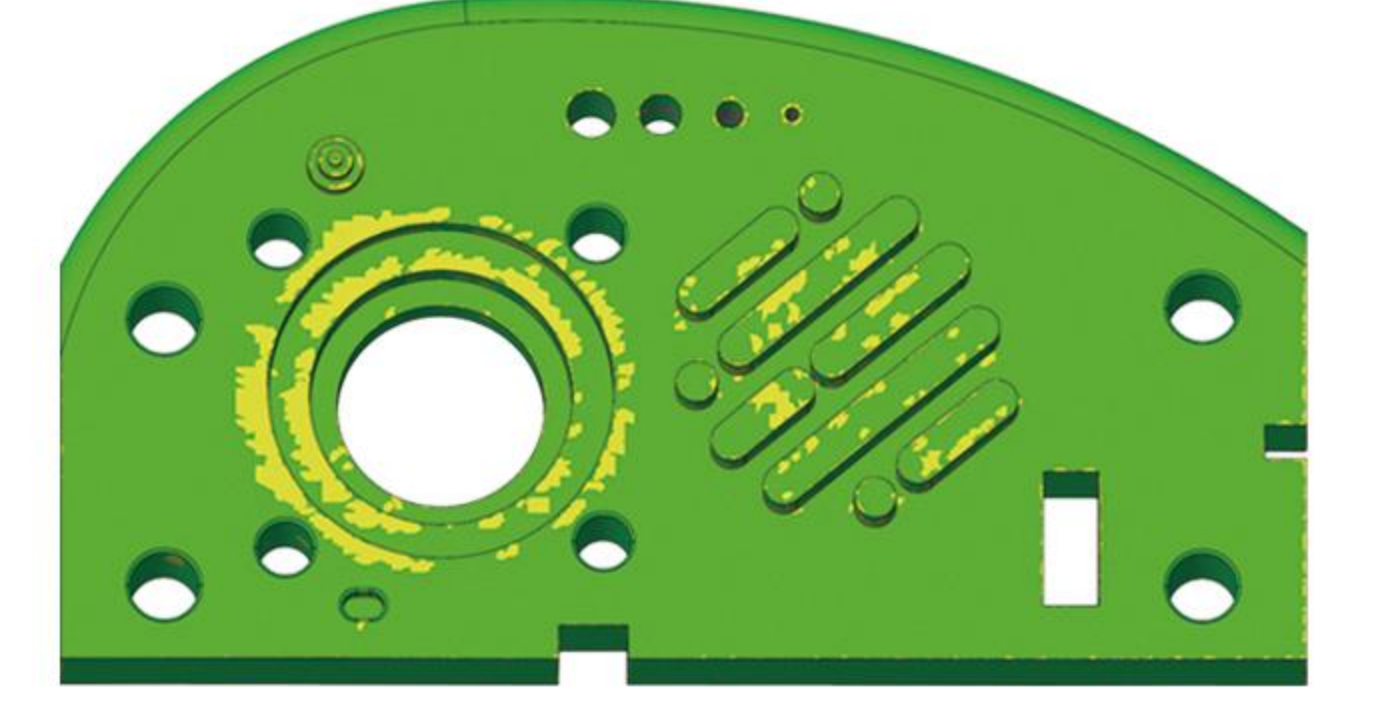
### ① Data integration optimization

After scanning is complete, the point cloud data or 3D model is imported into specialized inspection software, preparing for subsequent processing.



### ② Intelligent comparison and analysis

The imported scan data is aligned with the reference standard part coordinates. After alignment, a color deviation map is generated to assist in error analysis.



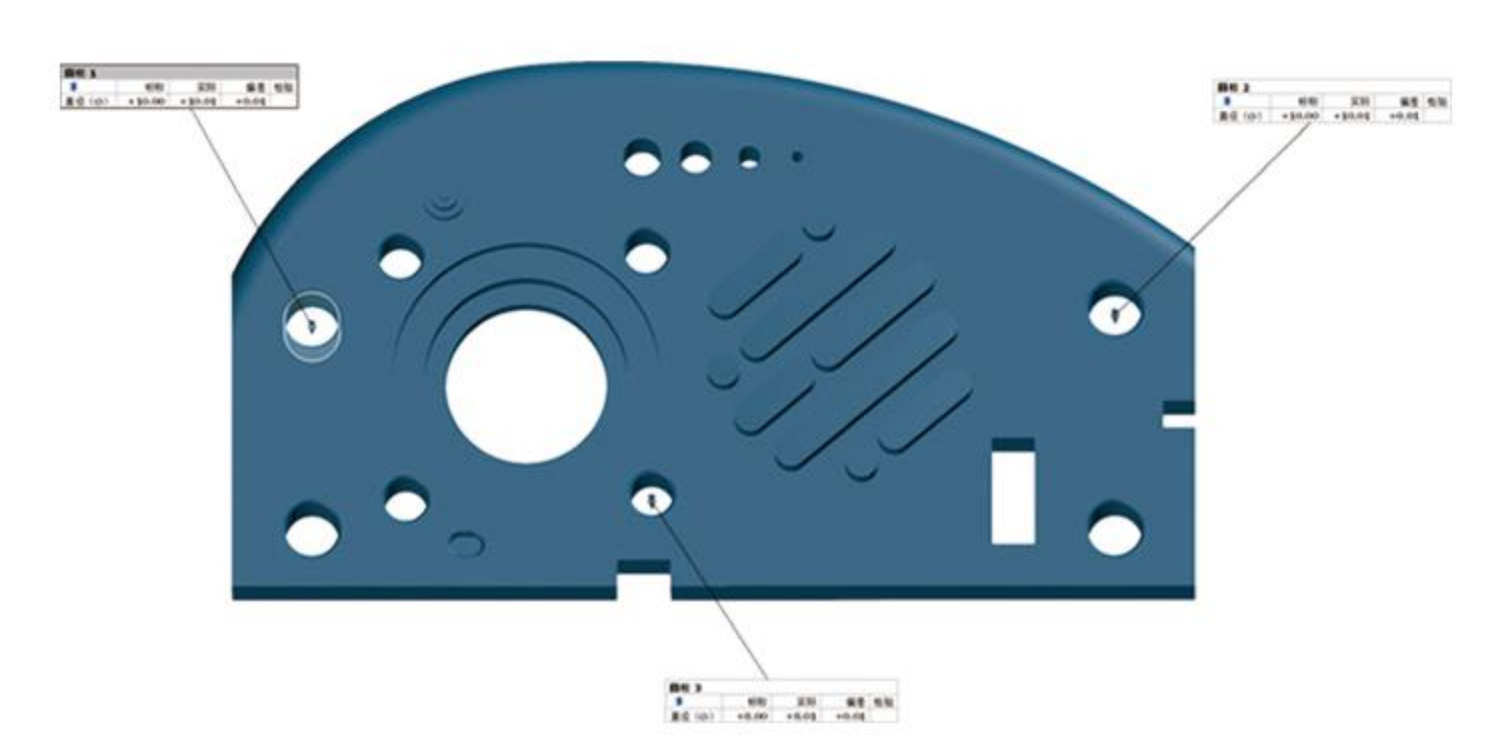
### ③ Multidimensional quality verification

Based on the completed alignment, detailed dimension measurement and tolerance analysis are performed to determine whether the product meets design specifications.



### ④ Smart reporting system

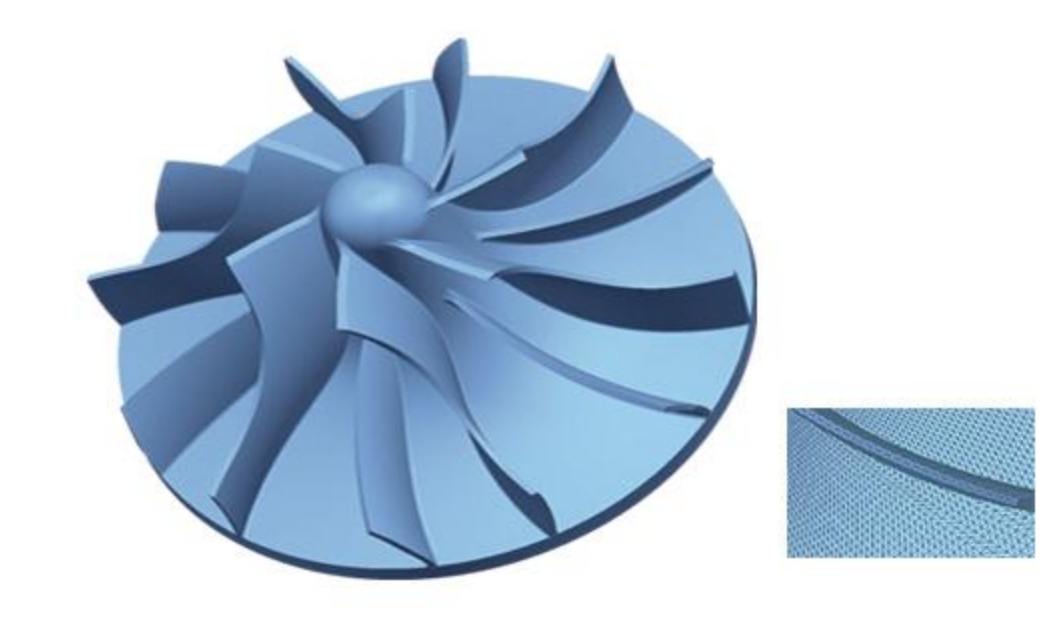
Generate inspection reports with one click. Through visualized analysis data, it helps quickly identify issues and improve quality control efficiency.



## REVERSE ENGINEERING PROCESS

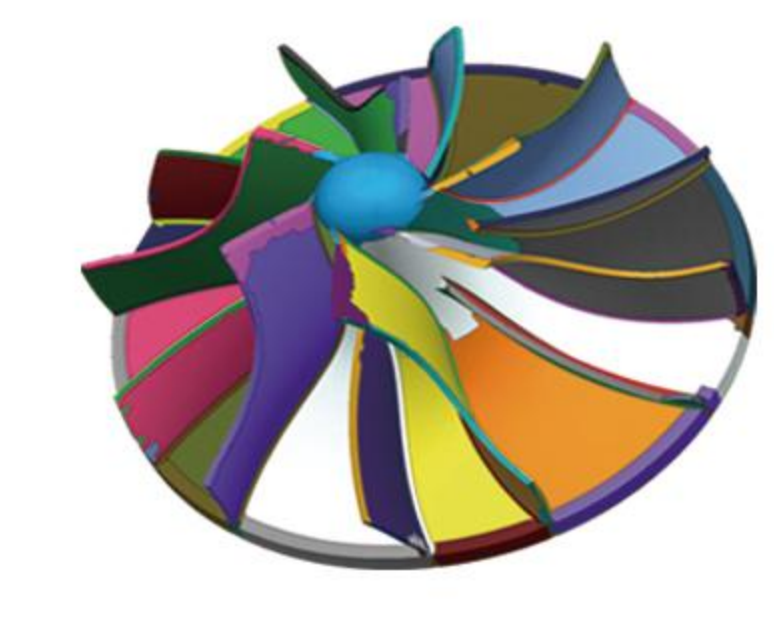
### ① Data Processing

Performs operations such as merging, combining, optimizing, hole-filling, smoothing, and decimating on scanned data to produce a high-quality faceted model.



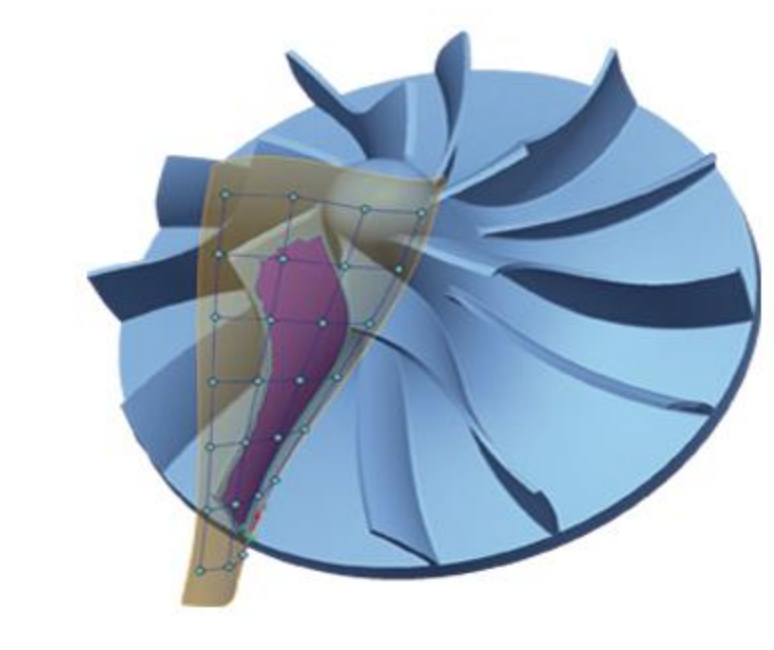
### ② Domain Segmentation

Automatically categorizes faceted models into distinct segmented domains based on curvature and features, extracts design parameters, and generates sketch profiles autonomously.



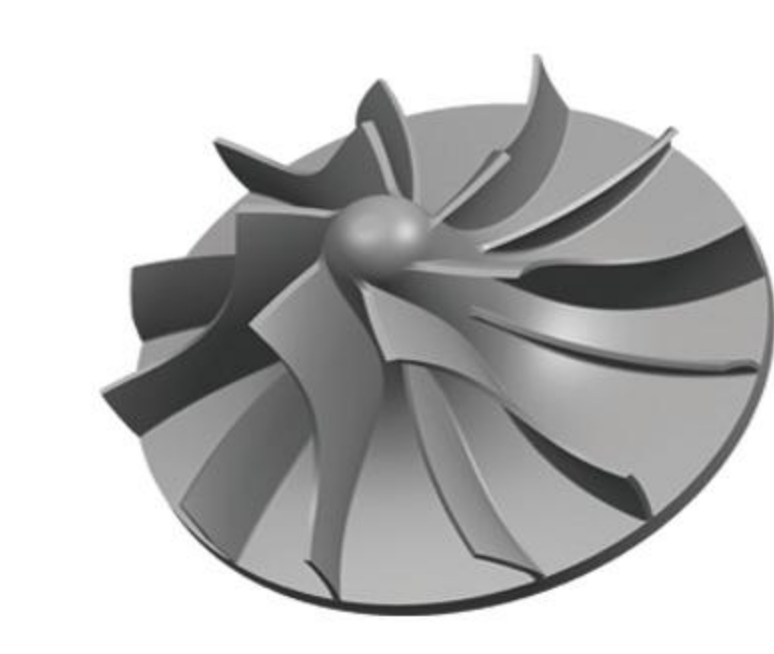
### ③ Precise Fitting

Creates NURBS surfaces using a mesh-based fitting algorithm, enabling quick and seamless generation of 3D free-form surface bodies from unstructured mesh shapes.



### ④ CAD Conversion

Creates CAD features from scan data, employing hybrid solid and surface modeling to accommodate various part types while preserving model accuracy.



## APPLICATIONS

